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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,105	10/17/2001	Roger L. Schultz	SC-01-05	4527
29106	7590	11/02/2006	EXAMINER	
GROOVER & HOLMES BOX 802889 DALLAS, TX 75380-2889			COLLINS, GIOVANNA M	
			ART UNIT	PAPER NUMBER
			3672	

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/036,105	SCHULTZ ET AL.	
	Examiner	Art Unit	
	Giovanna M. Collins	3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 15 and 19 is/are allowed.
- 6) ☒ Claim(s) 6-14, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 6-7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Scherbatskoy 5390153.

Referring to claim 6 and 9, Scherbatskoy discloses a downhole assembly which indicates a failure condition: by valve (40) capable of irreversible movement (the valve can be made to be irreversible, since the functional limitation is not positively recited) which affects mud flow impedance from a first state which is initially present during normal drilling irreversibly into at least one intermediate state which indicates a failure condition, and thereafter irreversibly into a final state, which returns mud flow impedance to substantially that seen during normal drilling said mud flow impedance is varied by opening an aperture which allows mud to flow from the interior of the drill string to the bore hole.

Referring to claim 7, Scherbatskoy discloses sensors (101) located on said downhole assembly which monitor parameters indicative of drill bit condition.

2. Claims 14 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Evans (4,346,591).

Evans discloses a method of operating a drill rig comprising using downhole circuitry to signal a change in downhole sensors by causing a reduction in drilling fluid long time average pressure (see col. 1, lines 48-55).

Referring to claim 17, Evans discloses downhole sensors (col.1 ,lines 48-55).

***Claim Rejections - 35 USC § 103***

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scherbatskoy 5,390,153.

Scherbatskoy does not disclose the valve movement occurs at least about one second. However, the specification does not the time constant is a critical the valve and the assembly disclosed by Scherbatskoy does not have any structural limitation to preclude a time constant of 1 second and moreover it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ215 (CCPA 1980). Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention to modify the valve disclosed by Scherbatskoy to have a time constant of about one second because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art

4. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scherbatskoy 5,390,153 in view of McCullough 3,853,184.

Scherbatskoy discloses a method of operating a drill ring comprising monitoring downhole mud flow impedance, having the impedance altered (col. 8, lines 15-20) by a downhole valve (40) that opens or closes a shunt path for mud flow and the valve changes position according to readings of one (101) located in the downhole sub assembly (col. 8, lines 15-17) that indicates an abnormal condition has occurred.

Scherbatskoy does not disclose halting drilling when the impedance is altered.

McCullough teaches halting drilling when is a problem is encountered during drilling (col. 2, lines 10-13). As it would be advantageous to halt drilling if the sensor sensing abnormal conditions, it would be obvious to one of ordinary skill in the art to modify the method disclosed by Scherbatskoy to halt the drilling in view of the teachings of McCullough.

Referring to claims 11, Scherbatskoy teaches the sensor measures axial strain (col. 10, line 8).

5. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scherbatskoy 5,390,153 in view of McCullough 3,853,184 as applied to claim 10 and further in view of Aronstam et al. 6,443,228.

Scherbatskoy discloses the sensors can be various types of sensors but does not disclose the sensor measures vibrational frequency. Aronstam teaches many drilling system currently used include sensor that measure vibrational frequency (col. 1, lines –col. 2, line 4). As one of ordinary skill in the art would be familiar with the use of a sensor to measure vibrational frequency, it would be obvious to one of ordinary skill in

the art to further modify the method disclosed by Scherbatskoy, as modified by McCullough to halt the drilling in view of the teachings of Aronstam.

6. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scherbatskoy 5,390,153 in view of McCullough 3,853,184 as applied to claim 10 and further in view of Randall et al. 5,511,037.

Scherbatskoy does not disclose that an adaptive filter analyzes the data from the sensor. Randall teaches that adaptive filter improves the quality of the data from a sensor by reducing noise (see col. 4, line 60-col. 5, line 4). As it would be advantageous to improve the quality of the data from the sensor and to reduce any noise, it would be obvious to one of ordinary skill in the art to further modify the method disclosed by Scherbatskoy, as modified by McCullough in view of the teachings of Randall.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans '591 in view of Randall et al. ('037).

Evans discloses the method of claim 14 but does not disclose that an adaptive filter analyzes the data from the sensor. Randall teaches that adaptive filter improves the quality of the data from a sensor by reducing noise (see col. 4, line 60-col. 5, line 4). As it would be advantageous to improve the quality of the data from the sensor and to reduce any noise, it would be obvious to modify Evans in view of Randall.

***Allowable Subject Matter***

Claims 1-5, 15 and 19 are allowed.

***Response to Arguments***

8. Applicant's arguments filed 6/28/06 have been fully considered but they are not persuasive. Referring to the Applicant's argument that the combination of Scherbatskoy and McCullough would destroy the reference. The applicant argues that drilling would be halted every time the sensor sends a signal. The rejection was based on when impedance is altered due to sensor sending a signal that the abnormal conditions have occurred.

Referring to claims 14 and 17-18, the examiner in advertently omitted these claims in the last office action.

Referring to previous arguments, concerning claim 14, the applicant argues the method disclosed by Evans would not significantly affect the long term average pressure (see argument dated 2/10/06). However, the claim does not state the rate at which the long time average pressure is affected only that there is a reduction and Evan discloses a reduction (even though may be a small one) in the long-term average pressure (see col. 1, lines 48-55).

Referring to claim 18, the applicant argues the adaptive filter taught by Randall does not analyze data. The Merriam-Webster dictionary defines analyze as to study to determine parts. The adaptive filter taught by Randall analyzes the data to determine

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which parts are noise. The applicant further argues the adaptive filter taught by Randall does not do the analyzing the claimed filter does. However, the type of analyzing the filter is not recited in the claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Giovanna M. Collins whose telephone number is 571-272-7027. The examiner can normally be reached on 6:30-3 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should



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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Gm Collins", with a stylized, cursive script.

**Giovanna M. Collins**  
**Patent Examiner**  
**Technology Center 3670**